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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/071,130	02/08/2002	Theodore Robert Grossman	13DV13989	1479

31316 7590 03/28/2003

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EXAMINER

MCNEIL, JENNIFER C

ART UNIT	PAPER NUMBER
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1775

DATE MAILED: 03/28/2003

6

Please find below and/or attached an Office communication concerning this application or proceeding.

9

Office Action Summary

Applicati n No.

10/071,130

Applicant(s)

GROSSMAN ET AL.

Examiner

Jennifer McNeil

Art Unit

1775

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 August 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☒ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

Art Unit: 1775

DETAILED ACTION

Oath/Declaration

The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because:

The full name of each inventor (family name and at least one given name together with any initial) has not been set forth.

The inventor's name is misspelled on the oath/declaration. "Murpji" should be -Murphy-.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 3 and 12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

It is not clear from the claims where in the method the stress relieving is to take place. Is it before or after the coating step? Please clarify.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Art Unit: 1775

Claims 10, 11, and 13-16 are rejected under 35 U.S.C. 102(b) as being anticipated by Schaeffer (US 6,066,405). Schaeffer teaches a nickel-based superalloy with a platinum aluminide coating thereon. The superalloy substrate may be Rene 'N6, which comprises 5.4 wt% rhenium (col. 4, line 7). The coating is applied by providing a source of aluminum, contacting the aluminum with a hydrogen or halide gas, and reacting the gas with the substrate at an elevated temperature. The elevated temperature may be 1925-2050 degrees Fahrenheit (col. 5, lines 1-8). The diffusion of the aluminum results in a coating with 18-24 wt% aluminum. The diffusion zone is considered to be the area between the surface of the substrate and the distance where the weight percent of aluminum has decreased to 18 wt% (col. 5, lines 30-45). The substrate has a concentration of about 6 wt% aluminum, and it is the examiner's position that the area not accounted for in the measurement of the coating serves as a diffusion zone.

Regarding claims 13 and 14, the substrate may be a blade as shown in Figure 1.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schaeffer (US 6,066,405) in view of Murphy et al (US 5,935,353). Schaeffer teaches a nickel-based superalloy and an aluminide coating therefore, but does not teach stress relieving the article. Murphy teaches a nickel-based superalloy with greater than 4 wt% Re. Murphy teaches that it is beneficial to stress relieve this type of substrate to prevent SRZ formation caused by diffusion coatings (col. 3, lines 1-38). Murphy teaches the SRZ formation is directly related to surface stress, therefore elimination of this stress decreases the formation of SRZ. It would have been obvious to one of ordinary skill in the art at the time

Art Unit: 1775

of the invention to stress relieve the substrate of Schaeffer to prevent the formation of a SRZ, since the substrate of Schaeffer has a rhenium content of more than 4 wt% and Murphy teaches that it is beneficial to stress relieve substrates prior to diffusion coating.

Claims 1, 2, 4-11, and 13-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Olsen et al (US 6,045,863) in view of Schaeffer (US 6,066,405). Olsen teaches an aluminide diffusion coating suited for nickel superalloys. The coating comprises an inner diffusion zone and an outer zone. The outer zone has a concentration of about 20-28 wt% aluminum. Olsen teaches that the inner diffusion zone has a thickness that is approximately half of the overall thickness of the coating, therefore, the ratio of the thickness would be 1:1. Olsen does not teach specific nickel superalloys that may be used as a substrate. Olsen does state that the coating may be applied to various metallic substrates, particularly the nickel-based superalloy articles such as gas turbine blades (col. 3, lines 43-46). Schaeffer teaches a nickel-based superalloy with a diffusion aluminide coating that may be a turbine blade, as discussed above. As it is taught by Schaeffer that an advanced superalloy for turbine blades is Rene 'N6, and it is suitable for diffusion aluminide coatings, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the advanced superalloy taught by Schaeffer as the substrate in Olsen, as they both are using nickel-based superalloys for turbine blades, and both are coating with diffusion aluminides.

Regarding claims 7 and 15, the coating is deposited at least partly by vapor deposition (Olsen, col. 5, lines 41-52).

Olsen also teaches heating the substrate to 1800-2050 degrees Fahrenheit (col. 5, lines 53-60).

Claims 3 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Olsen et al (US 6,045,863) and Schaeffer (US 6,066,405) as applied to claims 1 and 10 above, and further in view of Murphy et al (US 5,953,353). Olsen and Schaeffer teach nickel-based superalloys with

Art Unit: 1775

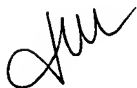
diffusion aluminide coatings as discussed above, but do not teach stress relieving the substrate. Murphy teaches a nickel-based superalloy with greater than 4 wt% Re. Murphy teaches that it is beneficial to stress relieve this type of substrate to prevent SRZ formation caused by diffusion coatings (col. 3, lines 1-38). Murphy teaches the SRZ formation is directly related to surface stress, therefore elimination of this stress decreases the formation of SRZ. It would have been obvious to one of ordinary skill in the art at the time of the invention to stress relieve the substrate of Schaeffer as used for the substrate of Olsen, to prevent the formation of a SRZ, since the substrate of Schaeffer has a rhenium content of more than 4 wt% and Murphy teaches that it is beneficial to stress relieve substrates prior to diffusion coating.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer McNeil whose telephone number is 703-305-0553. The examiner can normally be reached on Monday through Friday, 9:30AM-6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Deborah Jones can be reached on 703-308-3822. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.



JCM
March 23, 2003

Jennifer McNeil
Examiner
Art Unit 1775